

C L A I M S

1. A gas-liquid contacting tray suitable for horizontal mounting in a normally vertical column, which tray comprises

5 - a tray plate with substantially circular circumference and having top and bottom surfaces, which tray plate is provided with passages for gas between the bottom and the top surface, and on which tray plate two semi-circular tray sections are defined by a virtual diametrical line of the tray plate; and

10 - a total of three downcomers for guiding liquid from the top surface of the tray plate to below the tray, each downcomer extending from an inlet opening arranged in the tray plate to a downcomer outlet opening below the tray,

15 wherein two of the downcomers are arranged in the corners of one of the semi-circular tray sections, and wherein the third downcomer is arranged on the other tray section substantially along a radius of the tray that is perpendicular to the diametrical line.

20 2. The tray according to claim 1, wherein the ratio of the area of the inlet opening of the radial downcomer to the total area of the inlet openings of both corner downcomers is between 0.75 and 1.25, preferably between 0.9 and 1.1.

25 3. The tray according to claim 1 or 2, wherein total area of the inlet openings of all three downcomers account for 20% or more of the total cross-sectional area of the tray.

30 4. The tray according to any one of claims 1-3, wherein the inlet opening of the radial downcomer defines a radial downcomer inlet length, and wherein the inlet openings of the corner downcomers define a total corner

owncomer inlet length, and wherein the ratio of the radial downcomer inlet length to the total corner downcomer inlet length is between 0.75 and 1.25, preferably between 0.9 and 1.1.

5        5. The tray according to any one of claims 1-4, wherein the inlet opening of each of the corner downcomers has a side parallel to the virtual diametrical line and a side perpendicular to the diametrical line, and a side substantially conforming to the circumference of the  
10       tray.

6. The tray according to claim 5, wherein the side substantially conforming to the circumference of the tray runs at least partly along a straight line.

15       7. The tray according to claim 5 or 6, wherein the side perpendicular to the diametrical line and the side substantially conforming to the circumference of the tray are connected by one or more further sides of the downcomer inlet opening.

20       8. The tray according to any one of claims 1-7, in an arrangement with a separation tray adjacent to the contacting tray, which separation tray is provided with one or more centrifugal separation devices.

9. The tray according to claim 8 wherein the contacting tray is integrally formed with the separation tray.